# Preliminary Close Out Report

# Envirochem Superfund Site

# Zionsville, Boone County, Indiana

## I. INTRODUCTION

This Preliminary Close Out Report ("PCOR") documents that the responsible parties, represented by the Environmental Conservation and Chemical Corporation ("Enviro-Chem or ECC") Site Trust (the "Trust"), have substantially completed all major construction activities for the Envirochem Superfund Site ("Site"). This PCOR has been completed in accordance with the Close Out Procedures for National Priorities List Sites (OSWER Directive 9320.2-09A-P, January 2000) and the "Addendum to Policy for Close Out Procedures for National Priorities List Sites" (OSWER 9320.2-13, December 6, 2005). The U.S. Environmental Protection Agency ("U.S. EPA") and its contractor CH2M Hill conducted a pre-final inspection on July 31, 2009. With the exception of punch list items that are being addressed, the Trust has substantially completed the construction in accordance with the remedial design ("RD") plans and specifications, as modified. The remedy is expected to perform as designed and any expected future adjustments are likely to be minimal in nature. In addition, the Trust is conducting activities intended to achieve performance standards and site completion.

## II. SUMMARY OF SITE CONDITIONS

### Background

The Site (also known as the "Environmental Conservation and Chemical Corporation," or the "ECC" Site) is located east and south of the Boone County Resource Recovery Systems, Inc. facility on U.S. Highway 421 in a primarily rural area of Boone County, Indiana, approximately five miles north of Zionsville and 10 miles northwest of Indianapolis as depicted on Figure 1. Its geographical coordinates are latitude +40.030000, longitude -086.278330. The Site, which occupies approximately 6.5 acres of land, was placed on the National Priorities List ("NPL") for site cleanup in September 1983. The Northside Sanitary Landfill Superfund Site is located immediately to the east of the Site and the Third Site is located immediately to the south of the Site as depicted on Figure 2. Activities related to a non-time critical removal action are ongoing at Third Site including treatment and containment of contaminated soil and treatment of contaminated groundwater. The last Five-year Review for the adjacent Northside Sanitary Landfill Superfund Site conducted in September 2004 is available online at http://www.epa.gov/R5Super/fiveyear/reviews_pdf/indiana/northside_landfill.pdf

An unnamed ditch near the west side of the Site flows into Finley Creek which flows into Eagle Creek about a half-mile downstream of the Site. Eagle Creek in turn feeds into the Eagle Creek Reservoir about ten miles further downstream. The Eagle Creek Reservoir has a storage capacity

of 7.8 billion gallons and is one of several sources of drinking water for Indianapolis. More information on water quality is provided in the 2008 Indianapolis Water Drinking Water Report available online at http://www.indianapoliswater.com/assets/docs/09IW_CCR_Web.pdf

The current land use for the surrounding area is residential, commercial, and agricultural. Nearby residents that are not connected to the municipal water supply use private wells for their water supply. A Health Consultation prepared by the Indiana State Department of Health for the adjacent Third Site concluded that private wells in the area are not impacted and deeper groundwater is protected by a confining layer. The Health Consultation is available online at http://www.atsdr.cdc.gov/HAC/PHA/thirdsite/thi_p1.html These conclusions are consistent with the findings of the March 14, 1986 final Remedial Investigation Report for the Site.

Envirochem began operations in 1977 and was engaged in the recovery, reclamation, and brokering of primary solvents, oils and other wastes received from industrial clients. Waste products were received in drums and bulk tankers and prepared for subsequent reclamation or disposal. The accumulation of contaminated stormwater on-site, poor management of the drum inventory, and several spills caused State and U.S. EPA investigations of Envirochem. The State pursued Envirochem for violations of the Environmental Management Act, the Air Pollution Control Law, and the Stream Pollution Control Law, resulting in a July 1981, Consent Decree approved by the Boone County Circuit Court. That Court imposed a civil penalty against Envirochem and placed Envirochem into receivership. In May 1982, Envirochem was ordered by the court to close and environmentally secure the Site for failure to reduce hazardous waste inventories. By August 1982, Envirochem was found to be insolvent.

U.S. EPA proposed the Site for the NPL in December 1982 and the Site was placed on the list in September 1983. U.S. EPA's contractor, CH2M Hill performed a Remedial Investigation ("RI") in 1983 and 1984 that involved an investigation of the nature and extent of contamination in soil, groundwater, surface water and sediments on and around the Site. The RI Report dated March 14, 1986, documented the results of the investigation as well as historical investigations performed by other parties. The historical investigations were conducted from 1976 through 1982. Sources of data were primarily laboratory data sheets or handwritten data summary tables, generally unaccompanied by descriptions of the sampling and testing procedures used. As such, much of this historical data could not be used as a basis for definitive interpretations of existing conditions on-site or off-site. Rather, the data could be used in qualitative assessments of contamination and in determining locations where further testing would be needed.

Soil contaminants found on-site were primarily volatile organic compounds ("VOCs") and phthalates. Migration of VOCs in the soil to the shallow saturated silty clay zone has occurred on-site. The shallow sand and gravel deposit (approximately 18 feet below ground surface) has also been found to be contaminated with VOCs though the source may have been the former cooling pond on-site rather than downward migration from the shallow saturated zone. Organic contaminants were also found in Finley Creek immediately downstream of the Site. Under site

conditions at the time of the RI, the VOCs and certain phthalates were expected to tend to leach from subsurface soil into the groundwater and slowly migrate to the unnamed ditch or Finley Creek downgradient of the Site. Once in the surface waters, contaminants would volatilize, adsorb to sediments, or experience dilutions of approximately 20 to 1 before reaching the downstream Eagle Creek Reservoir (about 10 miles).

The endangerment assessment found that under the no action alternative potential risk to human health and the environment exists at the Site (excess lifetime cancer risk levels as high as $4 \times 10^{-1}$ were estimated). For public health concerns, the exposure routes that resulted in an excess lifetime risk greater than $1 \times 10^{-6}$ were:

- o Soil via ingestion. Excess lifetime cancer risk of $4 \times 10^{-3}$ to $8 \times 10^{-6}$. This route requires soil below existing cap to be uncovered for exposure to occur.
- o Groundwater in the shallow saturated zone and shallow sand and gravel deposit via ingestion or dermal absorption. Excess lifetime cancer risk of $4 \times 10^{-1}$ to $3 \times 10^{-3}$. This route requires installation of a potable water well in area of contamination.
- o Ingestion of fish with bio-concentrated contaminants. Excess lifetime cancer risk of $3 \times 10^{-6}$. This route requires regular fishing in the unnamed ditch or Finley Creek downstream to confluence with Eagle Creek.

Risk from dermal absorption of VOCs during wading in the unnamed ditch or Finley Creek downstream to Eagle Creek was calculated to be between $1 \times 10^{-6}$ and $1 \times 10^{-7}$.

For environmental concerns the RI determined that the projected release of contaminants to the surface water in the Unnamed Ditch should not exceed the ambient water quality criteria for protection of aquatic life. A fish consumption advisory remains in place for certain fish caught in Eagle Creek due to elevated levels of PCBs.

The major public health and environmental risks from the Site were derived in the endangerment assessment are outlined in Table 6-16 of the RI Report. The health risks are due to levels of hazardous substances exceeding U.S. EPA's risk management criteria for either the average or reasonable maximum exposure scenarios. Soils at the Site contaminated with high levels of numerous volatile and semi-volatile organic compounds present potential exposures to soil and groundwater associated with human health risks. Risks from exposure to groundwater are attributed to the presence of various organic and inorganic hazardous substances that exist at concentrations exceeding State and Federal drinking water standards and surface water quality standards.

The major risks come from the contaminated soil via direct contact and release of soil contaminants to the groundwater and subsequent use of groundwater for bathing and drinking water. The population at risk was determined to be limited and, while the area was projected to grow, the impact of the Site appeared to be localized. In conclusion, the RI determined that the

Site posed a potential threat to the public health, welfare, and environment, and recommended that a feasibility study of remedial action to cost-effectively mitigate the site hazards should be performed.

U.S. EPA's contractor, CH2M Hill performed a Feasibility Study ("FS") and produced a FS report dated December 5, 1986, which evaluated several alternatives for cleaning-up the Site to be combined with the remedial action for the neighboring Northside Landfill Site, which had also been placed on the NPL.

Surface contaminants were removed from the Site in an operation extending from March 1983 through 1984. These cleanup efforts were initiated by U.S. EPA and completed by a group of potentially responsible parties ("PRPs"). The cleanup was overseen by U.S. EPA and the Indiana Department of Environmental Management ("IDEM"), pursuant to a Consent Decree entered on November 9, 1983. Actions included removal and treatment or disposal of cooling pond waters, approximately 30,000 drums of waste, 220,000 gallons of hazardous waste from tanks, 5,650 cubic yards of contaminated soil and cooling pond sludge.

In March 1985, ponded water containing hazardous substances was discovered on the concrete pad at the southern end of the Site. During the resulting emergency action, U.S. EPA constructed a sump at the southeast corner of the Site, and removed and disposed of 20,000 gallons of contaminated water containing high levels of VOCs.

**Remedial Construction Activities**

A Record of Decision ("ROD") was issued by U.S. EPA on September 25, 1987, selecting a combined remedy for the Site and the adjacent Northside Sanitary Landfill Site. That ROD provided for an impermeable cap over the contaminated areas and a groundwater extraction and treatment system.

Based on a treatability study performed by the PRPs, U.S. EPA and IDEM later determined that it would be feasible and preferable to actively treat the contaminant source at the Site, rather than simply containing these materials as provided for in the 1987 ROD. U.S. EPA therefore issued Amended RODs in June 1991, establishing separate, complementary remedial approaches for the Envirochem and Northside Sites.

The remedial action objectives include the following: preventing direct contact with contaminated soils, reducing infiltration, enhancing the remedy with a soil vapor extraction system, removing and destroying VOCs and selected base neutral/acid organics from the soils.

As amended, the ROD for the Site required:

- Access Restrictions: Placement of deed restrictions on the property to prevent future

development of the land thereby protecting against direct contact with contaminated soil and groundwater.

- Soil vapor extraction ("SVE"): Construction of a system utilizing injection and extraction trenches to vaporize and extract VOCs and phenols from contaminated soils. These contaminants would be captured and removed utilizing granular activated carbon. The goal of the soil vapor extraction system was to clean the soil contamination source areas to cleanup levels that would assure long-term protection of groundwater and surface water.

- RCRA Compliant Cap and Surface Controls: Construction of a multi-layered cap over the entire Site. The cap would comply with Resource Conservation and Recovery Act ("RCRA") performance-based standards. (The presence of the cap would also improve the efficiency of the soil vapor extraction system by reducing the amount of air and vapor that could escape from that system.) Surface controls included rerouting of the unnamed ditch west of the Site to keep surface waters further away from contaminated soil areas, and demolition and disposal of on-site buildings.

- Contingent Groundwater Treatment: In the event the soil vapor extraction system did not achieve soil cleanup standards within a five-year operation period, or if at that time surface water or groundwater samples still showed unacceptable levels of contamination, groundwater extraction and treatment would be required. Collected groundwater would be treated to meet effluent standards before discharge into Finley Creek. Groundwater extraction and treatment would continue until cleanup standards were met.

The objectives of the cap are to prevent direct contact with contaminated soils, reduce infiltration, and enhance the soil vapor extraction system. The objective of the soil vapor extraction activity is to remove and destroy VOCs and selected base neutral/acid organics from the soils.

U.S. EPA and IDEM have jointly overseen cleanup activities at the Site under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended ("CERCLA"), 42 U.S.C. §9601, et seq. U.S. EPA and IDEM entered into a Consent Decree with certain PRPs who agreed to implement the final remedy for the Site. That Consent Decree was approved by the U.S. District Court for the Southern District of Indiana on September 10, 1991. The Consent Decree requires those PRPs to implement the remedy selected by U.S. EPA (with IDEM's concurrence) in a September 25, 1987, ROD and a June 7, 1991, ROD Amendment.

Since that time, the PRPs have, under U.S. EPA and IDEM supervision: (1) conducted a Supplemental Investigation in January 1993, to collect groundwater data needed to design dewatering and treatment facilities associated with the SVE system; (2) obtained the necessary access agreements in July 1993, with the site owners to permit cleanup of contaminated areas and

support activities on adjacent property; (3) completed site preparation work in the Fall of 1993 (with final supplemental work in the Spring of 1994), including an upgrade of site fencing, removal of site structures and debris, decontamination and disposal of tanks, construction of pads for future decontamination and storage activities, site grading and construction of drainage channels; (4) from September 1994, through January 22, 1996, secured, inventoried, analyzed and removed drums of contaminated material that had accumulated on-site during previous investigations and response activities; and (5) submitted a 90% design for completion of the remedial action on December 19, 1991 which the parties recognized (in light of circumstances described below) required substantial revision. Due to need for revisions to the previous design documents, the PRPs submitted the following: 1) a new 30% design plan for review and comment in July 1994; 2) a revised 30% design plan in January 1995; 3) a 90% design plan on October 27, 1995; and 4) a draft 100% design on September 26, 1996.

While the PRPs began designing and implementing the final remedy for the Site under U.S. EPA and IDEM oversight, U.S. EPA and IDEM determined that, based upon newly developed information, certain technical modifications and improvements to the selected remedy were appropriate. Section 117(c) of CERCLA and Section 300.435(c)(2)(I) of the National Oil and Hazardous Substances Contingency Plan establish procedures for explaining, documenting, and informing the public of significant changes to the remedy that occur after the ROD is signed. An Explanation of Significant Differences ("ESD") was required since the remedial action to be taken differed significantly from the remedy selected in the ROD but did not fundamentally alter that remedy with respect to scope, performance or cost. The public was properly notified of the ESD that addressed several issues. The Consent Decree and accompanying documents were modified to reflect the remedy changes described in the ESD.

First, during the January 1993, Supplemental Investigation, the PRPs identified nine organic compounds in site groundwater that had not been identified at levels of concern in the Remedial Investigation (and thus did not have cleanup standards in the ROD). The parties discussed and agreed to a mechanism for establishing appropriate cleanup standards for certain of these additional compounds.

Second, the Supplemental Investigation also showed that the water table at the southern end of the Site was higher than it was during the SVE pilot test conducted in 1987, and was high enough that it could be expected to hamper the effectiveness of SVE in that area. In response to this data, the PRPs evaluated other options for addressing contamination in the southern end of the Site and presented an evaluation report to U.S. EPA and IDEM.

In order to remediate soils in the southern portion of the Site, soils beneath the concrete pad were generally excavated to a depth of 9 feet. This is the depth to which SVE was originally expected to be effective. Sheet pilings were used in the eastern portion of this area to reduce the amount of water that seeped into the excavated area. When the nine-foot depth was reached, any remaining visible contamination was also excavated where possible, and any contamination of

concern identified through field screening was also excavated. Excavation was limited by concerns about sidewall stability and the need to avoid an underlying zone of highly permeable sand. Most of the water accumulated in the excavation area was collected, characterized, treated to meet discharge standards and appropriately disposed of through discharge to an on-site surface water body. Confirmatory soil samples were collected and the excavation was backfilled with clean soil from an off-site borrow source. The concrete pad overlying this area was crushed and excavated with the underlying soil. The excavated soils and crushed concrete were moved to the northern area of the Site an incorporated into the area where SVE was performed on the soil and crushed concrete. An impermeable cap which complies with RCRA Subtitle C standards was to be placed over the excavated area unless the confirmatory sampling showed that the excavation produced the equivalent of a clean closure (i.e., no detectable contamination) under RCRA. This cap was not constructed while the PRPs pursued clarification from IDEM on RCRA closure ARARs for the area.

Third, during excavation activities conducted as part of the site preparation work (both in preparing the drainage channels and in preparing the decontamination pad), contamination was encountered to the west of the approximate western site boundary identified in the ROD and the Consent Decree. This required the PRPs to conduct additional sampling along a portion of the western boundary of the Site to better determine the nature and extent of contamination in that area. The PRPs had planned to use this area as part of the "Central Support Zone" for storage and movement of equipment and materials for the remedy. The PRPs conducted their Central Support Zone Investigation in July 1995.

Fourth, further researching SVE technologies in preparing the design, the PRPs learned that: (1) SVE technology developments made it possible that extraction wells might prove to be as effective, or more effective, than the extraction trenches specified in the Amended ROD; (2) on-site activities to operate and maintain the SVE system would likely damage the integrity of the RCRA cap, requiring potentially difficult repairs and suggesting that use of an interim cap could still improve the effectiveness of SVE and be upgraded to a full RCRA cap after SVE was complete; and (3) SVE contractors possess specialized and sometimes proprietary information on extraction processes that are necessary to a complete design but would not be available until after a SVE contractor is selected based on an initial design, an approach that was somewhat inconsistent with the procedures described in the 1991 Consent Decree.

As noted above, soils and crushed concrete from the southern area of the Site were excavated and moved to the northern portion of the Site. After this material was placed and graded properly, a surface cover was placed over this area. This cover consisted of a minimum of three feet of compacted, impermeable native soil and one foot of top soil to support vegetation. This cover also facilitated the proper operation of the SVE system. The final cover, consisting of a geo-composite drainage net with a minimum transmissivity of 0.01 $ft^2$/sec., a minimum of one foot of soil and one foot of topsoil was placed on top of the originally placed soil layer described above. The final cover is therefore essentially identical to the cover described in the Amended ROD

with one major exception. This final cover was not extended over the excavated area on the southern end of the Site as the PRPs pursued clarification from IDEM on RCRA closure ARARs for the area.

Fifth, Central Support Zone Investigation data indicated that the organic carbon content of site soils was generally higher than was assumed in the model used to set soil cleanup levels in the ROD Amendment. That model calculated the rate at which contamination in the soil would be transferred to groundwater as groundwater flowed through the Site. Using that model, U.S. EPA calculated cleanup standards that would reduce soil contamination to levels that would be protective of groundwater. The site-specific data on the organic carbon content of site soils indicated that a slightly higher level of contamination in the soil would likely remain adsorbed to the soil rather than carried along with the groundwater than was originally predicted. As a result of this new information, U.S. EPA and IDEM agreed to make minor revisions to the model and the cleanup standards to reflect the actual site conditions. Since cleanup standards were going to be revised, U.S. EPA and IDEM also agreed to add a minor change in the cleanup standard for 1,1-Dichloroethane ("DCA"). The change in the DCA cleanup standard was based on information about the cancer potency of DCA developed since the time of the 1991 ROD Amendment. Since that time, a general scientific consensus has developed that concludes DCA does not pose the level of cancer risk previously believed. For more information see the Agency for Toxic Substances and Disease Registry's toxicological profile for DCA available online at http://www.atsdr.cdc.gov/toxprofiles/tp133.html As a result, the risk calculation and cleanup standard for DCA were re-calculated to reflect this information.

The Remedy embodied in the ROD and Consent Decree requires containment of waste on-site and places operation and maintenance obligations on the PRPs for the foreseeable future. As long as those obligations exist, the Site cannot be disturbed or developed. The PRPs are obliged to maintain the cap and the remedy elements under the Consent Decree, as amended, through an O&M plan. This is important because wastes and contaminated soils remain beneath the cap that would pose a potential threat to human health or the environment if the integrity of the cap was compromised.

Institutional controls ("ICs") are non-engineered instruments, such as administrative and/or legal controls that help minimize the potential for exposure to contamination and protect the integrity of the remedy. Compliance with ICs is required to assure long-term protectiveness for those areas that do not allow for unlimited use or unrestricted exposure ("UU/UE").

As required by the Consent Decree, the Trustees entered an access agreement with the Bankert family, who own the site property through a trust and live adjacent to and southwest of the Site. In addition to providing unrestricted access for site work, the Bankerts also agree "that they will not construct or place any improvements within the Remedial Action Boundary or Support Zone Area Boundary ... unless and until the Court enters an order in USA v. Enviro-Chem determining that [the PRPs] have no further obligations...." These areas include all of the

relevant portions of the Site and will be identified in maps to be developed as part of the IC evaluation activities or IC Plan. The agreement was recorded with the Boone County Recorder's office in 1993.

The objective of the access agreement is to ensure access by U.S. EPA and IDEM and prevent any use of the site property and any disturbance of the cap or the remedy elements. The agreement imposing these restrictions is recorded and states that the covenants run with the land.

**System Operation/Operation & Maintenance**

The SVE system was operated from 1998 until early 2001. Under the ROD, as amended and modified, the PRPs had five years to demonstrate that the SVE system had achieved the remedial cleanup objectives. If the PRPs could not demonstrate that the cleanup standards had been achieved, the Consent Decree required them to implement a contingent remedy to assure containment of site-related contamination. That contingent "Additional Work" provision required the PRPs to construct and operate a groundwater collection trench along the south and east boundaries of the Site to assure protection of off-site groundwater and surface water.

In the 2003 Five-year Review, U.S. EPA confirmed that the SVE remedy could not meet cleanup standards, so that the contingent containment remedy was required to assure long-term protectiveness. The PRPs proposed to add an active SVE extraction component and a barrier wall to improve the effectiveness of the collection system in the contingent remedy. U.S. EPA, in consultation with IDEM, agreed to modify the Additional Work provisions of the Consent Decree and the Amended ROD. An ESD issued in September 2006, provides for the remedy to be revised to install additional SVE trenches generally along the alignment previously required in Revised Exhibit A for the subsurface water interception trench. The new SVE trenches are connected to the existing SVE system and will be operated using all of the basic operations of the existing SVE system. The SVE trenches will capture and treat contamination near the unnamed ditch. A barrier wall was constructed providing further containment, and, when the SVE system is not in operation, routing any groundwater moving along the barrier wall through a permeable reactive gate system ("PRGS") to provide treatment of any residual contamination. Because the modified Additional Work remedy is focused on containment of contaminated groundwater, further capping of the soils in the southern pad area of the Site is no longer necessary. The parties filed a stipulation with the Court outlining the modified Additional Work and requesting Court approval for conforming modifications to the Consent Decree. The Court approved the thin barrier curtain wall stipulation in February 2006. It is expected to approve the remaining Consent Decree modifications in September 2009. The construction activities began in late 2007 after the Trust signed a contract with HIS Constructors, LLC., dated November 14, 2007.

The purpose of these measures is to capture and treat through the SVE system the more mobile contaminants in the vicinity of the SVE trenches and moisture in sand seams that enter the SVE trenches. Because groundwater generally moves very slowly at the Site, it will be many years

before the remaining contamination at the Site not captured by SVE reaches the trench interception system. The volume of groundwater reaching the trench is expected to be low and some attenuation of this contamination may occur prior to arrival at the trench. The trench system along with a barrier wall and a PRGS are in place and are expected to passively collect and treat this contamination in the future. U.S. EPA, in consultation with IDEM, expects this will treat all remaining contaminants of concern that may migrate to the trench and be protective of human health and the environment.

As discussed in the April 2008 Five-year Review of the Site (available online at http://www.epa.gov/superfund/sites/fiveyear/f2008050002179.pdf, significant groundwater contamination was documented within the till unit with only minor contamination of a few wells screened in the underlying shallow sand and gravel unit. Contamination of the shallow sand and gravel deposit may have occurred either via migration through the silty clay till on-site or through contaminated water and sediment in the former cooling water pond. The cooling pond had intersected the sand and gravel deposit before removal of contaminated water and sludge and backfilling with clean soil during removal actions in 1985. The deep confined aquifer below the Site has not been found to be contaminated. Future migration of on-site contaminants to the deep aquifer is unlikely because of an upward vertical hydraulic gradient from the aquifer. Vapor intrusion is not expected to be an issue at the Site considering that groundwater is flowing to the southeast toward the Northside Sanitary Landfill and residences are not located above the known extent of groundwater contamination.

Only a minor amount of dense non-aqueous phase liquid ("DNAPL") was identified at the Site in till well T-2. When present in significant quantity, DNAPL may act as a continuing source of groundwater contamination. Therefore, DNAPL is considered to be a principal threat waste. At this Site, however, DNAPL is not known to be a significant problem. Groundwater discharge to the unnamed ditch remains a potential concern to be addressed by the additional remedial action. Given that DNAPL is not a significant problem, the groundwater flow through the till is slow, and other site characteristics discussed previously, U.S. EPA expects that this response action will effectively protect the unnamed ditch.

There will be several distinct phases for the operation of the modified Additional Work. The activities will be different for each period. The periods and the associated activities are as follows:

A. Active Phase: This is defined as the period of operation of the augmented SVE trench system.

B. Phase I Monitoring: This is defined as a one-year period beginning when the Soil Vapor Standards have been achieved in the augmented SVE trenches. At the completion of the Phase I Monitoring period, Phase II Long-term Monitoring will begin at the Site.

C. Phase II Long-term Monitoring: This is defined as the period following the completion of

Phase I Monitoring.

Additionally, as contemplated by the amended ROD, because the SVE system did not achieve the cleanup standards, the focus of the remedy has shifted to preventing migration of contamination from the Site. The barrier wall and reactive gate are expected to provide a containment and treatment system. The barrier wall, SVE system, PRGS and other remaining components of the revised contingent remedy have been constructed. Operation of the system began in December 2008; however, significant concerns were raised indicating that the SVE system was not functioning as designed due to weather conditions. The system was shutdown until the problems could be evaluated under more favorable weather conditions beginning on March 12, 2009. Construction problems were identified, repairs were made, and additional construction activities were completed.

**Redevelopment or Reuse**

The access agreement for the remedy obtained by the PRPs from the owners in 1993, which was duly recorded and runs with the land, continues to preclude their constructing or placing any improvements on the Site unless and until the Court enters an order that the PRPs have no further obligations under the Consent Decree as to the Site. The Court would not do so without prior notice to U.S. EPA and an opportunity for it to be heard. Additionally, as part of the Attachment Z-1 remedy, the PRPs have agreed to submit to U.S. EPA for its approval any proposed amendment to the existing access agreement that would effect the integrity of the cap in the northern or central parts of the Site, that would allow excavation in southern part of the Site, or that would pose a risk to the barrier wall or the reactive gate.

U.S. EPA recognizes that redevelopment or reuse of the surface of the property may be possible even though a groundwater remedy is ongoing, so long as such redevelopment or reuse is protective of human health and the environment and is both protective of the cap and of the long term groundwater remedy. U.S. EPA may modify the restrictions required by the 1987 ROD, as appropriate to allow for the redevelopment or reuse of the Site while maintaining the protectiveness of the remedy. Any such changes in the restrictions would require a corresponding modification of the 1991 Consent Decree. At that time additional measures may be taken to enhance the Agency's ability to directly enforce the remaining use restrictions.

## III. DEMONSTRATION OF QUALITY ASSURANCE/QUALITY CONTROL ("QA/QC")

U.S. EPA and its contractor, CH2M Hill in consultation with IDEM, routinely provided oversight of most of the Trust's construction activities and found them to be substantially consistent with the ROD, as modified, and the Consent Decree, as well as RD plans and specifications.

The construction quality assurance plan incorporated U.S. EPA and IDEM requirements. Confirmatory inspections, independent testing, audits, and evaluations of materials and workmanship were usually performed in accordance with the construction drawings, technical specifications and CQAP. Construction quality assurance was performed by the Trust's contractor Environ International, Inc. which maintained an on-site presence through most of the construction activities. Known deviations or non-adherence to QA/QC protocols, drawings, or specifications were documented and resolved.

The Quality Assurance Project Plan ("QAPP") incorporated U.S. EPA and IDEM procedures and protocol. U.S. EPA analytical methods were used for confirmation and monitoring samples. The U.S. EPA and its contractor CH2M Hill in consultation with IDEM determined that the analytical results are accurate to the degree needed to assure satisfactory execution of the RA.

## IV. ACTIVITIES AND SCHEDULE FOR SITE COMPLETION

The following activities are anticipated to be completed according to the schedule described below:

| Task | Estimated Completion | Responsible Organization |
|---|---|---|
| Complete Final Inspection | December 2009 | U.S. EPA |
| Approve O&M Plan | December 2009 | U.S. EPA |
| Determine Remedy O&F | July 2010 | U.S. EPA |
| Approve RA Report | December 2039 | U.S. EPA |
| Institutional Controls Plan | December 2009 | RPs |
| Additional Institutional Controls Implementation (if necessary) | December 2009 | RPs |
| Third Five-Year Review | April 2013 | U.S. EPA |
| Approve Final Close Out Report | December 2039 | U.S. EPA |
| Deletion from NPL | December 2039 | U.S. EPA |

The Trust is conducting operation and maintenance of the remedy and monitoring of groundwater, surface water, sediment, and air to satisfy the requirements for site completion and assure consistency with the NCP and the ROD.

## V. SUMMARY OF REMEDIATION COSTS

The original cost estimate to implement the remedial action described in the 1987 ROD was $33.9 million for a combined remedy to address both this Site and the Northside Sanitary Landfill Site. More detailed cost estimate documentation can be found in the report titled, "Combined Alternatives Analysis Report, Northside Sanitary Landfill and Environmental Conservation and Chemical Corporation." The 1991 ROD estimated the remedy cost for the Site to be in the range of $5 to $9 million.

The 2006 ESD estimated the cost of constructing the modified additional work to be in the range of $2 million, and the cost of operation, maintenance (O&M) including monitoring to be in the range of $500,000. In the Augmented SVE Trench Completion Report for Attachment Z-1 Remedy, the Trust's contractor HIS Constructors, LLC., estimated the construction costs to be approximately $2,640,000. Additional design costs amounted to $145,000 since the ESD's cost estimate was prepared. Total O&M is now estimated to be $735,000. Final costs may be greater than these estimates.

## VI. FIVE-YEAR REVIEWS

Hazardous substances will remain at the Site above levels that allow unlimited use and unrestricted exposure after completion of the remedial action. Pursuant to CERCLA section 121(c) and 40 CFR 300.430(f)(4)(ii) U.S. EPA must conduct statutory Five-year Reviews. The first Five-year Review report was completed April 8, 2003 in accordance with the Comprehensive Five-year Review Guidance (OSWER Directive 9355.7-03B-P), and the second Five-year Review was completed on April 4, 2008. The third five-year review will be conducted by April 2013.

Richard C Karl

Richard C. Karl
Director
Superfund Division

9-3-09

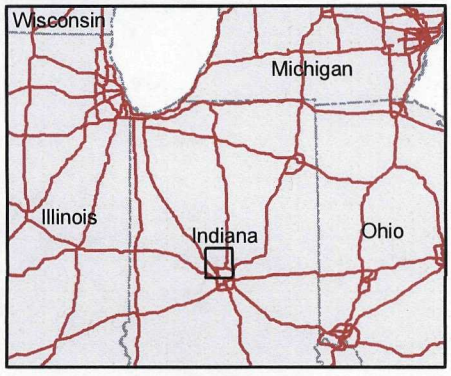
Date

## Site Location

**Superfund**
**U.S. Environmental Protection Agency**

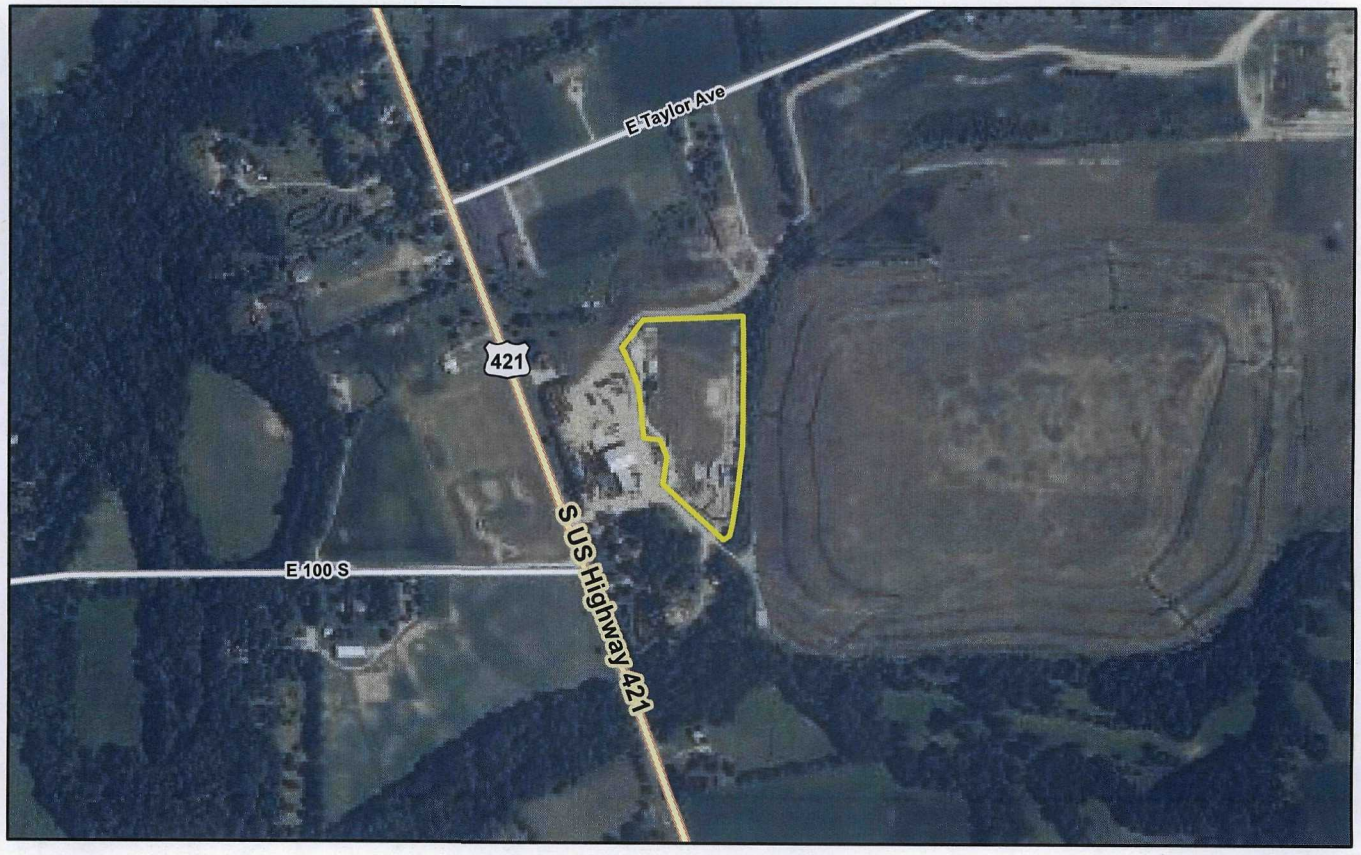
# EnviroChem Corporation
# Boone County, IN

**IND084259951**




**State**


**County**




**Site**

**Legend**

EnviroChem Corp.

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Figure 1

Produced by Angela Rozinski
U.S. EPA Region 5 on 7/13/09
Image Date: 2008

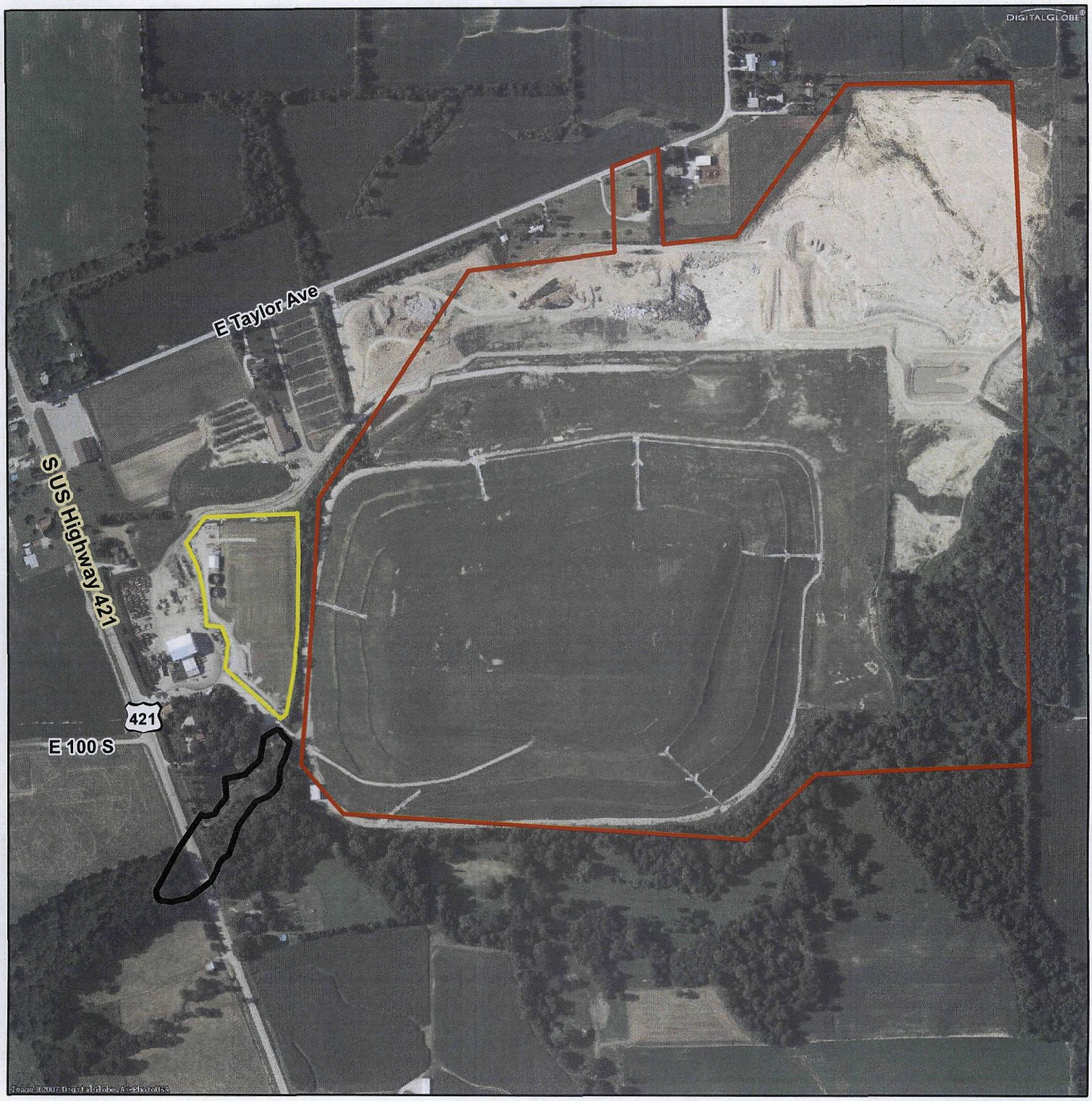
GEOS
Groundwater Evaluation and Optimization System

Area Properties

Superfund
U.S. Environmental Protection Agency

# EnviroChem Corporation
# Boone County, IN

**IND084259951**




0.25 Miles

## Legend

- Northside Sanitary Landfill
- Third Site Boundary
- EnviroChem Corp.

N

Produced by Julie Schilf
U.S. EPA Region 5 on 4/3/08
Image Date: 2005

GEOS
Groundwater Evaluation and Optimization System